DOCUMENT RESUME

ED 180 444 IR 007 918

AUTHOR Nerheim, Rosalee
TITLE MIST: A Music Information System.
PUB DATE 6 Apr 79
NOTE 7p.: Paper presented at the Annual Conference on Academic Computing Applications (Gary, IN, April 6, 1979): For a related document, see IR 007 915

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS *Computer Programs: Higher Education: *Information Retrieval: *Information Systems: Musical Composition: *Music Education: Programing

ABSTRACT

The Music Information System for Theorists (MIST) allows musicians to find pedagogical music excerpts with ease and speed. Users may search for excerpts using as keys composer, date, and/or musical concept exhibited. The desired excerpts are printed in conventional music notation or output in MUSTRAN code via the Indiana University Computer Music System. The MIST data base contains two record types: bibliographic data and the music itself. MIST may also be used to search for entire works based on composer and/or date. (Author)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED180444

U S DEPARTMENT OF HEALTH,
EDUCATION & WELFARE
NATIONAL INSTITUTE OF
EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY

MIST: A MUSIC INFORMATION SYSTEM

by

Rosalee Nerheim

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

Rosalee Nerheim

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

IR007918

MIST: A Music Information System

Rosalee Nerheim
Wrubel Computing Center
Indiana University, Bloomington, IN 47401

Information systems have proved their usefulness in many disciplines. Until now, they have had very limited success in music mainly because music differs so radically from other types of data. MIST was written to deal with this problem.

A music information system can deal with two types of music data. One type is bibliographic data about music and music literature; the other is the music itself. This second type of data poses far greater problems. Music must be converted to some machine readable form, usually alphanumeric. This is costly and inconvenient because music notation, a two dimensional system, differs so radically from alphanumeric code, a one dimensional system. More problems arise when a scholar just wants an excerpt from a file of music data. This sort of searching becomes very difficult when working with any large corpus of data. For this reason, most operational systems use incipits only which limits their applicability.

The Music Information System for Theorists (MIST) was written by the author to help music scholars with some of their data handling problems. With MIST a scholar can retrieve pedagogical excerpts by specifying attributes of composer, date, style, and/or desired concepts to be exhibited by the excerpt, or he can search for entire works by composer. The user types his requests at a terminal and a list of excerpts or works satisfying his request is returned to him. He may choose to print the music data in conventional music notation or he can get a copy of the data in alphanumeric form for further work. MIST is flexible in that its data base can be enlarged and corrected as needed.

MIST consists of three programs. These programs tie into the Indiana University Computer Music System, which can print the music, analyze various aspects of the music, or realize it in sound. INTRACT is an interactive program that allows a user to search for music in the ways already mentioned. When a user requests some music data, INTRACT saves this information and passes it to REQUEST. REQUEST retrieves the desired music data and directs the I. U. Computer Music System to perform further processing. The third program, UPDATE/INSPECT, edits the data base. The

user need only be aware of INTRACT and the final product.

MIST Record Types

MIST's data base uses two record types. One type contains the music itself, the other contains bibliographic information. The former always contains a complete work. MIST's alphanumeric representation of music is MUSTRAN. A translator program converts the MUSTRAN to its internal form, which has an elaborately linked structure. When each work of music is added to the data base, it is stored with a work identification number along with its MUSTRAN internal form on any storage device.

The other record type, containing the bibliographic information, requires a random access device. Each bibliographic record holds information describing an excerpt or complete work. A record describing an excerpt includes composer, title, concept(s) exhibited, and a pointer to where the excerpt occurs in the MUSTRAN data. The pointer consists of work identification number, voice(s), inclusive measure numbers, and starting beat. Consider the following example of a pedal.

The record describing this passage contains the following data:

J. S. BACH	(composer)
TWO PART INVENTION NO. 7 MEAS. 15-17	(title)
1723	(date)
PEDAL	(concept exhibited)
W16.V1,2.M15-17.B3.	(pointer)

This pointer indicates that this excerpt can be found in work number 16, voices one and two, measures 15-17, starting on beat three of measure 15.

The program REQUEST can take this pointer information,

pull the proper work from the music data, and use the link structure of the MUSTRAN internal form to find the proper voice and measures. Traversing the links is fast and cheap.

The bibliographic record type is also used to encode data about a complete work. Note that many bibliographic records, one describing the complete work and the rest describing excerpts, can point to a single music record.

All information about excerpts is gathered using traditional (i.e., manual) analysis. MIST itself does no analysis.

MIST searching commands

INTRACT, the searching program, runs interactively. A user can ask for a list of music excerpts via the FIND command. This is the most important command. Specifications for FIND are given by the criteria COMPOSER, CONCEPT and DATE.

COMPOSER narrows the search to works by a particular composer. To look for anything written by Beethoven, the user types:

COMPOSER = BEETHOVEN

CONCEPT is the criterion which is matched against the concept information in the bibliographic records. To search for examples of hocket, the user would type:

CONCEPT = HOCKET

Up to three concepts can be specified in one search.

DATE gives the desired range of dates of composition.

DATE = 1685-1750

Other commands include COMPOSERS (list composers in data base); CONCEPTS (list concepts); PRINT,nnn (print excerpt/work nnn in conventional music notation); DATA,nnn (output excerpt/work nnn in MUSTRAN source and HELP.

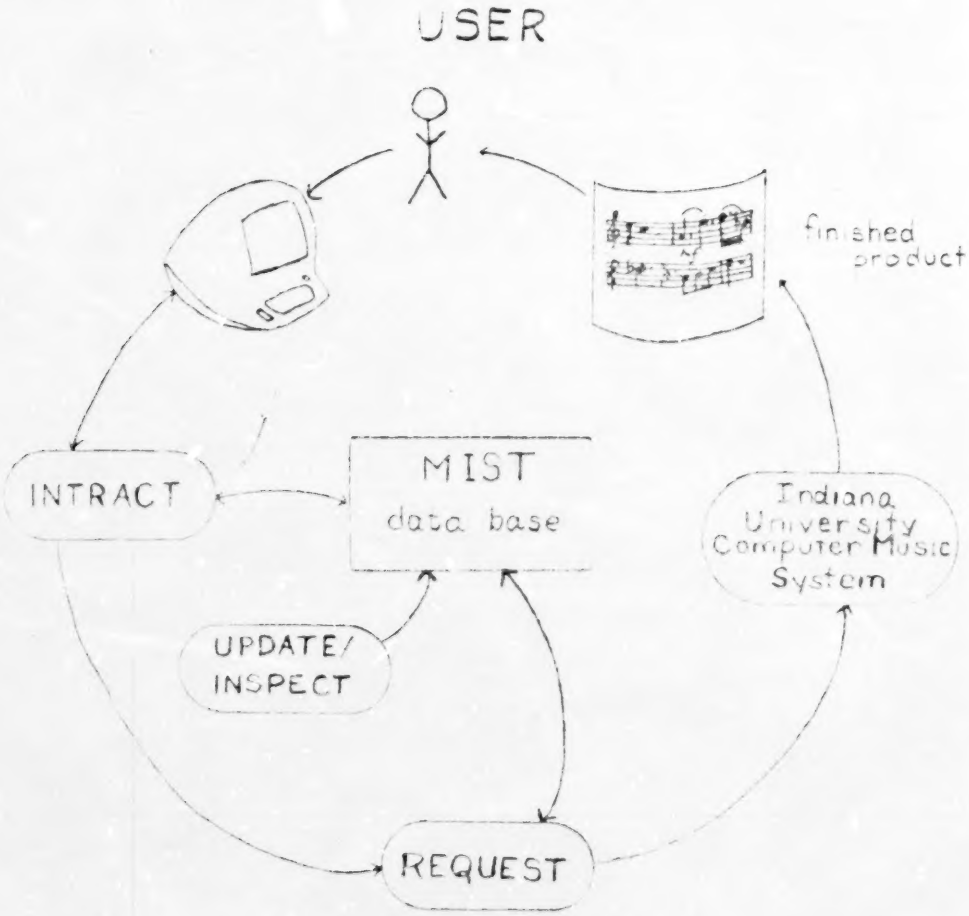

Figure 1: MIST programs, the MIST data base, and the Indiana University Computer Music System

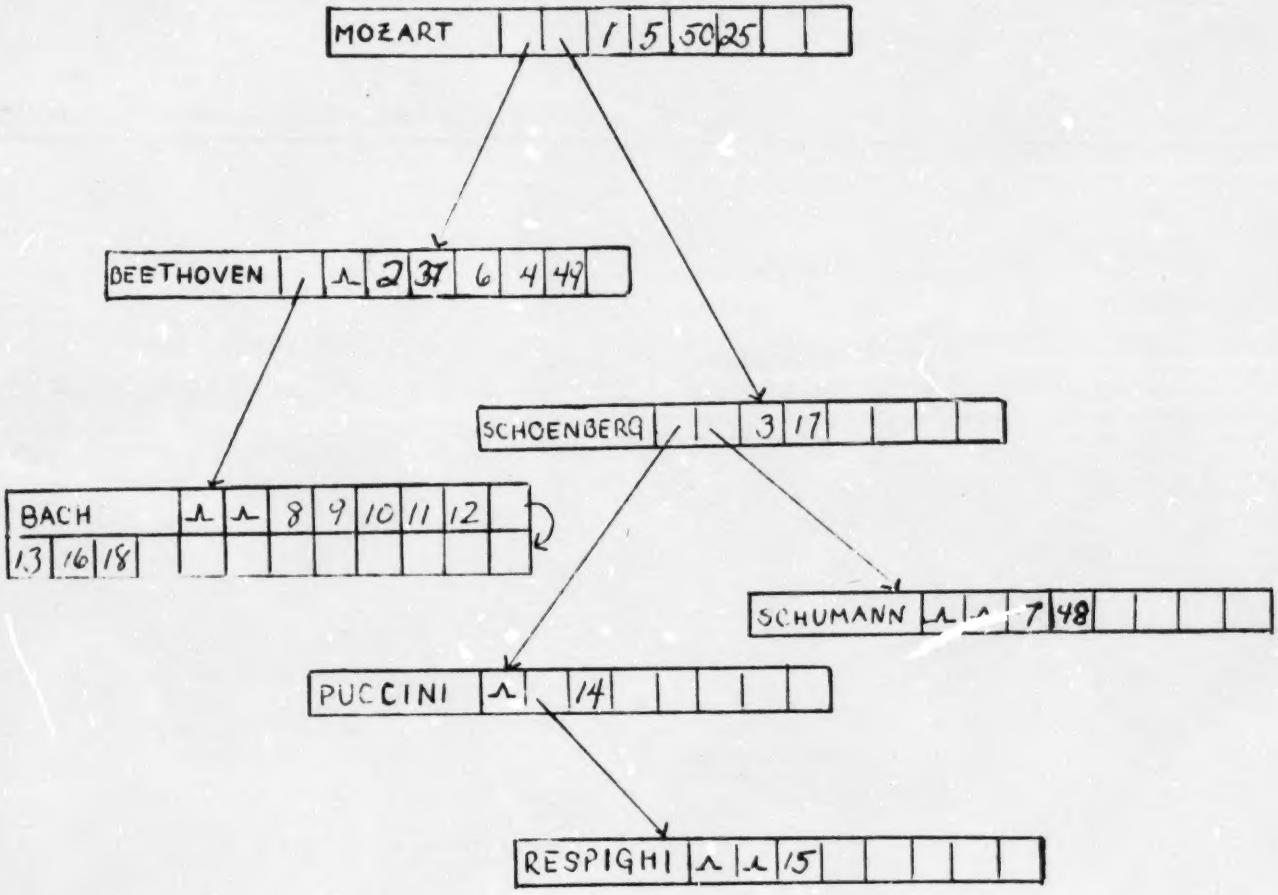

Figure 2: Search tree used by MIST